Some observations of Humped spiders (Uloboridae) at Notting Hill, Victoria

Introduction

In October 2011, two small spiders built adjoining webs under the eaves and patio roof on the south side of our house in the Melbourne suburb of Notting Hill. By November 2012 the web had become a large, rambling, bluish tinted, messy-looking structure that measured approximately $1900 \times 900 \times 600$ mm. Most people would have swept it away right at the start, but I decided to leave it alone and see what I could find out about its occupants.

Characteristics of Humped spiders

The web was home to Humped spiders, which belong to the family Uloboridae (Museum Victoria pers. comm. 5 January 2012), and are also known as 'feather-legged spiders' or 'hackled orbweavers'. Like other members of this family, Humped spiders have no venom glands, but immobilise their prey by wrapping it in spider silk. They build somewhat asymmetrical, usually horizontal or sloping, semi-permanent wheel webs, which often form a mass of tangled silk shared by numerous individual spiders (Simon-Brunet 1994). Unlike other spiders that build wheel webs, Humped spiders do not remove the old web when they construct a new one (Marples 1962). Therefore, when many spiders keep making or repairing webs in one location, the total size of the web keeps increasing (pers. obs.). The texture of the silk is woolly, and is termed 'cribellate' (Simon-Brunet 1994; Main 1976). Several other spider families have the organs for producing cribellate silk, but the uloborids are the only ones that produce wheel webs (Child 1968). In Australia, there are six genera of uloborids, with 13 described species (Simon-Brunet 1994). Marples (1962) states that several species in the Uloboridae are social in habits and live together in large numbers.

Humped spiders at Notting Hill

I don't know which species was in the web. The females were about 5 mm long, dark grey, with

the abdomen triangular in profile, while the males were smaller and yellowish brown, with a distinct white central stripe along the upper surface of the cephalothorax (Fig. 1). Both sexes spent much of the time looking more like debris than spiders (Figs. 2 and 3). Behaviourwise, they were somewhat similar to *Philoponella congregabilis* as described in Clyne (1969, as *Uloborus congregabilis*). However, according to arachnologist Robert Whyte (pers. comm. 13 October 2012), determination to species may be difficult as this is an understudied group; also, he had not seen a white stripe on a male uloborid before.

The two adult females that were present in 2011 each produced an egg case. In the first week of January 2012 there were about 34 black spiderlings in the web. They seemed not to move about much, and I didn't see them catch or eat any prey, although they must have done so. Since nothing seemed to change as the weeks passed, I made the mistake of not paying attention.

Suddenly, one day early in September 2012, I noticed that the young spiders had moulted and were much bigger. There were also fewer of them—about 20. By this time a number of insects were becoming caught in the web. The spiders bound some of them up in little white parcels (Fig. 4), but appeared to ignore others altogether (Fig. 5). I saw one spider juggling two white parcels (Fig. 6). According to the Wikipedia web site, some uloborid spiders use up to 140 m of spider silk to bind up their prey! The process can take 20 minutes or more (Marples 1962).

Mating behaviour

During September and October 2012 I saw some male spiders in the web, and happened to witness mating take place on 26 September and 2 October. A male spider visited a female

Naturalist Notes



Fig. 1. Male Humped spider, showing white stripe on cephalothorax.



Fig. 3. Male Humped spider looking like debris.



Fig. 2. Female Humped spider looking like debris.



Fig. 4. Female Humped spider binding up prey.

many times. He started by vibrating the web. If she 'answered' by vibrating the web, they approached each other, coming together briefly. If she ignored him, he didn't advance towards her, but waited a little while before trying again. The female spider did not kill the male after mating.

Unfortunately I could not ascertain how much time elapsed between mating and the building of egg cases.



Fig. 5. Fly in web, ignored by the spiders.

Egg cases

The egg cases of these spiders were light brown and looked rather like a narrow dry Holly leaf (Fig. 7). They were 12-16 mm long and 5 mm across at the widest point. Fifteen egg cases were constructed during the period from early September to 14 November. Eight of these were made between 29 September and 5 October, when two were built every second day. The spiders constructed their egg cases early in the morning, possibly starting at first light. On 3 October, I saw two putting the finishing touches to their cases at 6.30 am AEDT, and by 7 am they had completed the task. On 5 October, I checked the web at 4.30 am, while it was still dark, and nothing was happening, but at 5.30 am when I checked again, two females were making egg cases. One had finished by about 9 am, the other by 10 am.

Once an egg case was completed, the female spider remained with it most of the time, upside down, departing only occasionally to capture prey. At one stage I saw two adult spiders holding prey while with their egg cases, but I don't know whether or not they had left in order to secure the prey. One spider seemed to be absent from her egg case from 27 November until she returned on 7 December. Most—if not all—of the spiders left their egg cases from time to time. On 28 November none of the spiders was guarding the egg cases but most returned the next day.



Fig. 6. Female Humped spider with two parcels of prey.

Incubation time

An egg case that was constructed on 1 November hatched 57 days later, on 28 December, so I expected the egg case constructed on 14 November to hatch on 11 January, but this didn't happen. On 4 January the temperature soared to 41°C and, based on my previous observations of newly hatched Black House spiderlings dying in 40°C on 2 January 2012, I concluded that the heat probably killed the spiderlings. On 12 January, I opened the egg case, and found 42 dead spiderlings and eight dried up eggs. If it was the heat that killed them, they



Fig. 7. Female Humped spider with egg case.

Naturalist Notes

were hatching on 4 January, an incubation period of 51 days, so it seems that the incubation times can vary. Because of their positions in the web, these were the only egg cases I could keep track of. The other egg cases contained no unhatched eggs, just tiny white scraps of broken 'eggshells'.

Number of spiderlings

The number of spiderlings emerging from the egg cases varied considerably. The largest number I observed was about 73 (Fig. 8) and the smallest 16. Most egg cases produced at least 50 spiderlings.

Maternal behaviour

I was able to observe some of the behaviour of a mother spider and her 16 spiderlings, which emerged on 2 November. After the spiderlings left the egg case, the mother spider built a web for them to venture into. The mother spider and spiderlings appeared to communicate by vibrating the web or by touching each other with their feet.

The first prey item that I saw caught in this web (on 4 November) was a cranefly. The spiderlings converged on it and sucked it dry, with no obvious help from their mother, although she remained close by (Fig. 9). The mother did not bind this insect in spider silk. Later the same day a fly was caught in the web and the mother bound it only partially before the spiderlings fed from it (Fig. 10). The next day the spiderlings fed from another partially bound insect. On 14 November I watched a spiderling feeding from a fully bound insect. After a while the mother chased the spiderling away and took over the prey for herself. Clyne (1969, p.34), referring



Fig. 8. Spiderlings newly emerged from egg case.

to *U. congregabilis* (now *P. congregabilis*), says that the young spiders share the mother spider's meals 'until they are old enough to make tiny webs adjoining hers'.

During November, hundreds of spiderlings were scattered throughout the web, so there were times when a spiderling would encounter an adult female that was not its mother. On one occasion I saw an adult, which had not yet produced an egg case, send a spiderling away with a kick from one of her feet.

Unusual behaviour

By 11 December, there were still two egg cases that had not produced spiderlings, and as far as I could tell only one adult spider remained. On 22 December this adult was with her egg



Fig. 9. Spiderlings and Cranefly.



Fig. 10. Spiderlings with partially bound fly.

The Victorian Naturalist

case, which she had constructed on 1 November; however, on the morning of 23 December an adult—presumably the same one—was with the other egg case, which was about 200 mm from her own. She stayed with this egg case until 28 December, when about 50 spiderlings emerged from her own abandoned egg case. Alas, by this time she was in the clutches of a Daddy Longlegs spider (Fig. 11), which fed from her for at least 25 hours. I had hoped to see if she would return to her own egg case once the spiderlings appeared.

Other behaviour

Unless the web was touched, these spiders showed no timidity when being observed by humans. Generally, they seemed to be a bit slow to act, except when capturing prey. They were not aggressive. When one came in contact with another's egg case, the owner chased the intruder away, but there was no rapid response from either. After a few moments the intruder dropped down on a strand of silk and remained there for some time, as uloborids do when alarmed (Main 1976).

A fly became caught in the web, but no spider approached it. After struggling for a while the fly escaped. There were a few insects in the web that didn't appear to have been taken by the spiders—at least they hadn't been wrapped up (e.g. Fig. 5). An insect became caught in a spiderling's web. The spiderling investigated it but then turned away, presumably because the



Fig. 11. Daddy Longlegs spider feeding from female Humped spider.

insect was too big for it to tackle. The insect struggled until it escaped.

To human eyes the spiders were very untidy, not destroying old webs or getting rid of the rubbish that accumulated in them, such as their moulted exoskeletons, remains of prey, dead leaves, thistledown and a large amount of dust. Sometimes sections of the web were torn away by the wind, making room for new webs to be built. Three spiders built webs on the outside of the old one, expanding the total size considerably. Part of one web was attached to my idle spider web sweeper!

Predators

Red Wattlebirds were active predators, taking a total of five female spiders along with their egg cases on 8 and 9 October. Spiders and egg cases deep within the web were safe from bird attack, probably because the birds didn't want their heads covered in spider silk.

Daddy Longlegs spiders, five of which lived close to the Humped spiders' web, captured several adults, as well as other types of spiders including another Daddy Longlegs. They seemed to be able to walk in the Humped spiders' web, though they were usually seen near the periphery. They were capturing adult spiders as early as—if not before—20 September.

Small black wasps appeared to prey on the Humped spiders, and were seen buzzing around the web on many occasions. Sometimes they became entangled but as far as I know they always escaped.

Because many of the female spiders were killed by predators, large numbers of newly hatched spiderlings were motherless. I could not tell whether or not they coped, because there were so many spiderlings in the web that it wasn't possible to keep track of them. They started to disappear in the first week of December, their fate unknown.

Other spiders in the web

Two other spiders entered the web and made themselves at home in it. Both were small and thin-bodied. The black one (Fig. 12), which often rested in a 'stretched out' position, looking like a motionless black line, arrived on 28 December. The brown one with the pale underside (Fig. 13) was first seen on 29 December. They

Naturalist Notes



Fig. 12. Black spider that came into the web.



Fig. 13. Brown and cream spider that came into the web.



Fig. 14. Brown and cream spider with fly.

stayed until 19 January. The brown one caught a fly (Fig. 14), but apart from that I didn't see either of them eat anything.

Moths on the wall behind the web

I was surprised that some moths spent the daytime resting on the wall behind the web. I don't know how they managed to get in and out without becoming entangled, but no doubt the web offered them protection from predators.

The outcome

Of the fifteen egg cases, five were eaten, one failed, and nine produced spiderlings. By the end of December 2012 all the adult spiders had disappeared (as had the Daddy Longlegs) and, by the end of January 2013, only five spiderlings remained out of about 400 that had emerged from the egg cases. Life for Humped spiders is very hazardous indeed!

Acknowledgements

Thank you to Simon Hinkley, of Museum Victoria, and Robert Whyte for information about the spiders, and to Gary Presland for obtaining some of the reference material.

References

Child J (1968) Australian Spiders (Cheshire-Lansdowne: Melbourne)

Clyne D (1969) A guide to Australian spiders: their collection and identification (Nelson: Melbourne).

http://en.wikipedia.org/uloboridae viewed 8 October 2012 Main BY (1976) Spiders (Collins: Sydney)

Marples BJ (1962) Notes on spiders of the family Uloboridae.

The Annals of Zoology 4, 1-11. Simon-Brunet B (1994) The silken web: a natural history of Australian spiders. (Reed: Chatswood NSW)

> Virgil Hubregtse 6 Saniky Street Notting Hill, Victoria 3168